



Complex Semisimple Lie Algebras

By Serre, Jean-Pierre / Jones, Glen A.

Book Condition: New. Publisher/Verlag: Springer, Berlin | These short notes, already well-known in their original French edition, present the basic theory of semisimple Lie algebras over the complex numbers. The author begins with a summary of the general properties of nilpotent, solvable, and semisimple Lie algebras. Subsequent chapters introduce Cartan subalgebras, root systems, and linear representations. The last chapter discusses the connection between Lie algebras, complex groups and compact groups. The book is intended to guide the reader towards further study. | I Nilpotent Lie Algebras and Solvable Lie Algebras.- 1. Lower Central Series.- 2. Definition of Nilpotent Lie Algebras.- 3. An Example of a Nilpotent Algebra.- 4. Engel's Theorems.- 5. Derived Series.- 6. Definition of Solvable Lie Algebras.- 7. Lie's Theorem.- 8. Cartan's Criterion.- II Semisimple Lie Algebras (General Theorems).- 1. Radical and Semisimplicity.- 2. The Cartan-Killing Criterion.- 3. Decomposition of Semisimple Lie Algebras.- 4. Derivations of Semisimple Lie Algebras.- 5. Semisimple Elements and Nilpotent Elements.- 6. Complete Reducibility Theorem.- 7. Complex Simple Lie Algebras.- 8. The Passage from Real to Complex.- III Cartan Subalgebras.- 1. Definition of Cartan Subalgebras.- 2. Regular Elements: Rank.- 3. The Cartan Subalgebra Associated with a Regular Element.- 4. Conjugacy of Cartan Subalgebras.- 5....



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